ABSTRACT

Disclosed is an apparatus for producing DLC film-coated plastic containers, which comprises an outer electrode unit disposed outside a plastic container, an inner electrode disposed inside the plastic container, a duct through which a raw material gas of a carbon source is fed into the plastic container having been degassed, and a high-frequency oscillator for applying a voltage between the outer electrode unit and the inner electrode with a carbon source gas being fed into the container, thereby to generate plasma to form a DLC film on the inner surface of the plastic container. In the apparatus, the outer electrode unit comprises a bottom electrode disposed along the bottom of the plastic container, and a body electrode disposed along the body of the plastic container, and the upper edge of the bottom electrode is positioned below the center between the top and the bottom of the plastic container. DLC films having good oxygen barrier properties, and DLC film-coated plastic containers suitable to oxygen-sensitive drinks and to sparkling drinks are produced by the use of the apparatus. Also disclosed is a method for producing a DLC film on the inner surface of a plastic container by the use of the apparatus.